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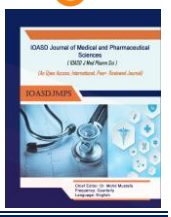

Sebaceous Neoplasm: Histopathological Pearls for the Practicing Pathologist

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Letter to the Editor

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Dear Sir,

Sebaceous neoplasm is an uncommon adnexal neoplasm characterized by sebaceous differentiation. It is most often encountered in elderly patients but can appear in any age group. Sebaceous neoplasm usually arise on the face, scalp but may be seen in other regions of body [1]. It is represented by various entities ranging from benign to malignant. Although histologically sebaceous adenoma is benign, its recognition is essential owing to its potential to mimic sebaceous carcinoma and its association with Muir-Torre syndrome (MTS)[2].

The pathogenesis of sebaceous neoplasm is poorly understood. However it is established that chronic sun exposure, irradiation, induced or immunosuppression are associated with sebaceous neoplasms [3]. Apart from these conditions MTS a variant of lynch syndrome associated with sebaceous neoplasm and other skin neoplasm. Wnt /beta-catenin are strongly correlated with abnormal proliferation of sebaceous glands. The transcription enhancer-binding factor (LEF-1) mutations play role in sebaceous carcinomas while some degree of malfunction of LEF-1 may be found in sebaceoma, sebaceous hyperplasia, sebaceous adenoma [2].

Histologically sebaceoma/sebaceous adenomas present as well-circumscribed, lobulated dermal tumors. Each lobule demonstrates a dual cell population with basaloid cells at the periphery and mature sebocytes in the central portion. The sebocytes exhibit abundant vacuolated cytoplasm and bland, centrally placed nuclei, while the peripheral basaloid cells are small, darkly staining, and mitotically inactive. The sharp demarcation between these two populations is a characteristic diagnostic clue [4].

Architecturally, the lobules are cohesive, well-organized, and lack the irregular, infiltrative borders that characterize sebaceous carcinoma. Nuclear pleomorphism, prominent nucleoli, and atypical mitoses are absent. Necrosis and ulceration are unusual. A fibrous stroma may surround the lobules, further enhancing the circumscribed appearance. In some cases, cystic degeneration within lobules may also be appreciated [5].

The main histological differential diagnosis is sebaceous carcinoma, which typically demonstrates infiltrative growth, cytologic atypia, frequent mitoses, and areas of necrosis. Another important consideration is basal cell carcinoma with sebaceous differentiation. The latter shows peripheral palisading, stromal retraction, and less prominent mature sebocytes. Trichoblastoma with sebaceous differentiation may also enter the differential, although it usually displays a more follicular germinative architecture with only focal sebaceous elements [6].

Immunohistochemistry may aid in problematic cases. Sebaceous differentiation is supported by positivity for EMA, androgen receptor, and adipophilin,

while mismatch repair protein analysis (MLH1, MSH2, MSH6, PMS2) is relevant in suspected Muir-Torre syndrome. A low proliferative index with Ki-67 further favors a diagnosis of sebaceous adenoma over carcinoma. Loss of MMR protein expression in sebaceous adenoma can point toward an underlying hereditary syndrome, which is an important diagnostic and prognostic consideration [7].

Recognition of sebaceous adenoma is not limited to its benign morphology. Clinically, in patients with multiple sebaceous neoplasms or with a personal/family history of visceral malignancy, the possibility of Muir-Torre syndrome should be raised, prompting further genetic work-up. The role of the pathologist is thus not only diagnostic but also preventive, guiding surveillance and genetic counseling [2].

In summary, sebaceous adenoma is a benign cutaneous adnexal tumor with distinctive histopathological features. Its accurate identification helps avoid overdiagnosis as sebaceous carcinoma and serves as a potential marker for hereditary cancer syndromes. Awareness of its microscopic features, differential diagnoses, and clinical implications ensures accurate reporting and optimal patient management [3].

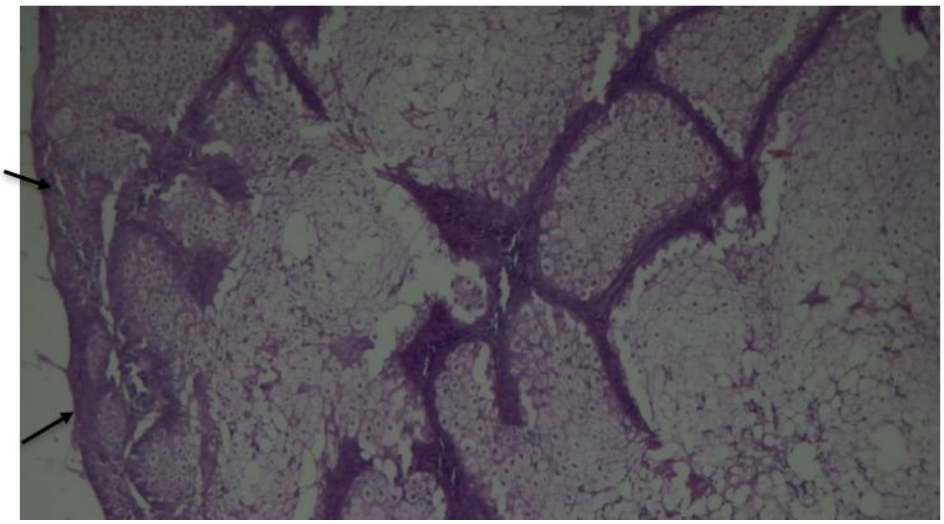

Figure 1: Histopathology section showing lobular arrangement with peripheral basaloid cells and central sebocytes

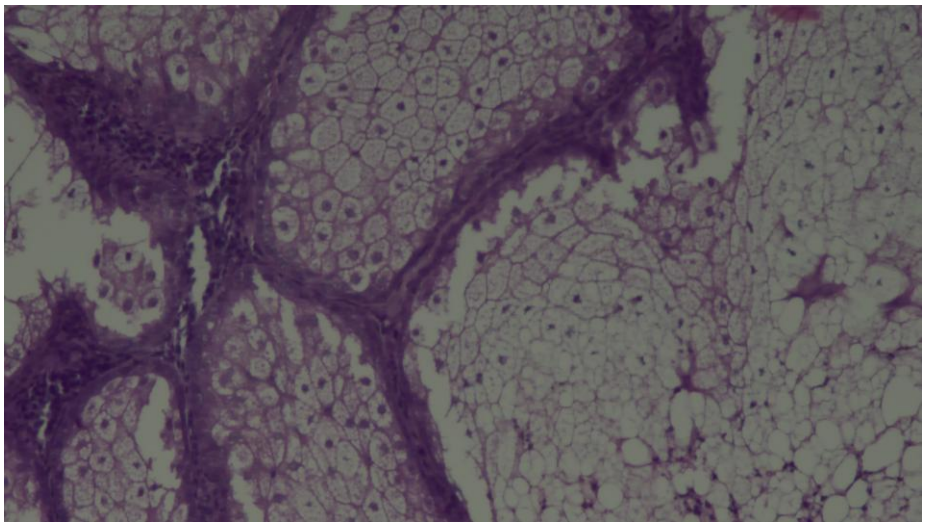

Figure 2: Higher magnification highlighting mature sebocytes with vacuolated cytoplasm

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